

contain a further N or O atom and which can be mono- or poly-substituted by C<sub>1</sub>-C<sub>8</sub>alkyl;

R<sub>16</sub> and R<sub>17</sub> are each independently of the other mono- or poly-substituted C<sub>1</sub>-C<sub>12</sub>alkyl, C<sub>2</sub>-C<sub>12</sub>alkenyl, C<sub>2</sub>-C<sub>12</sub>alkynyl, C<sub>3</sub>-C<sub>12</sub>cycloalkyl, C<sub>3</sub>-C<sub>12</sub>cycloalkenyl, C<sub>3</sub>-C<sub>12</sub>heterocycloalkyl, C<sub>7</sub>-C<sub>12</sub>aralkyl, C<sub>6</sub>-C<sub>10</sub>aryl or C<sub>5</sub>-C<sub>9</sub>heteroaryl;

M<sup>r</sup> is a transition metal cation having r positive charges;

A<sup>m-</sup> is an inorganic, organic or organometallic anion, or a mixture thereof;

Z<sup>n+</sup> is a proton, a metal, ammonium or phosphonium cation, a positively charged organic or organometallic chromophore, or a mixture thereof;

it being possible once or more times radicals of the same or different ligands L<sub>1</sub>, L<sub>2</sub>, L<sub>3</sub> and/or L<sub>4</sub>, each selected from the group consisting of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub>, R<sub>12</sub>, R<sub>14</sub>, R<sub>15</sub> and R<sub>16</sub>, to be bonded to one another in pairs by way of a direct bond or an -O-, -S- or -N(R<sub>17</sub>)- bridge, and/or for from 0 to p anions A<sup>m-</sup> and/or from 0 to q cations Z<sup>n+</sup> each to be bonded to any radical R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub>, R<sub>12</sub>, R<sub>13</sub>, R<sub>14</sub>, R<sub>15</sub>, R<sub>16</sub> or R<sub>17</sub> of the same or different ligands L<sub>1</sub>, L<sub>2</sub>, L<sub>3</sub> and/or L<sub>4</sub> or to M<sup>r</sup> by way of a direct bond or an -O-, -S- or -N(R<sub>17</sub>)- bridge;

k is an integer from 1 to 6;

m, n and r are each independently of the others an integer from 1 to 4; preferably m and n are 1 or 2 and r is 2 or 3; o is a number from 1 to 4; and

[[o,]] p and q are each a number from 0 to 4, the ratio of o, p and q to one another, according to the charge of the associated sub-structures, being such that in formula (I), (II) or (III) there is no resulting excess positive or negative charge;

and with the further proviso that when R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>7</sub> and R<sub>8</sub> are all H, R<sub>2</sub> is OH, R<sub>6</sub> is NO<sub>2</sub>, M is Co and r is 3, [Z<sup>n+</sup>]<sub>q</sub> does not have the formula